Frontiers in Plasma Catalysis (ISPCEM 2018)

It is our great pleasure to bring forth the special issue of Catal Today, Frontiers of Plasma Catalysis, based on the 2018 International Symposium on Plasma for Catalysis and Energy Materials (ISPCEM 2018). ISPCEM 2018 was successfully held in Tianjin, China in October 2018. The series of ISPCEM symposia started in 2012 as biannual conferences, which brought experts in the field from all over the world and had generated significant interest and progresses that prompted many novel discovery and applications. Examples are illustrated in the previous three special issues in Catalysis Today and Topic in Catalysis [1-3]. As before, selected presentations of ISPCEM 2018 and some additions were invited for manuscript submission, review and publication of the special journal issue. We appreciate the assistance and facilitation from Catalysis Today to make this special issue possible.

There are two reviews and twenty-five original papers accepted for publication in this special issue. The reviews include modeling to answer challenging questions of plasma catalysis and current state and perspectives of catalyst regeneration via plasma technology [4,5]. Several original papers focus on catalyst preparation with unique properties and utilizing the reduction capacity of plasma species [6-10]. Other papers address catalysts prepared via plasma technology for applications in hydrogen production [11-13], oxygen reduction [14,15], oxidation [16,17], photo-catalysis [18,19] and other areas [20-27]. In addition, three papers combine plasma technology and catalysts in one system for ethylene oxidation and pyrolysis and reforming of waste biomass [28-30]. We believe that this special issue highlights the most up-to-date advancements of plasma technology for catalysis and catalyst preparation to address pressing energy and environmental issues.

We wish to thank the contributions of authors and critiques of reviewers to make this special issue successful. The assistance of the editorial team of Catalysis Today Journal is very much appreciated. We also acknowledge the great effort for preparation and organization of the International Advisory Board and Organizing Committee of ISPCEM led by Professor Chang-Jun Liu, so everyone could enjoy ISPCEM 2018 extensively. Hope to see you all and more in Liverpool, UK in October(?) 2020.

Reference:

1. ISPCEM 2012
2. ISPCEM 2014
3. Z. Wang, B. Jang, C. Liu, Recent Advances in Plasma Catalysis (ISPCEM 2016), Top Catal (2017) 60:797-798
4. Bogaerts Burning questions of plasma catalysis: answers by modeling
5. Lee Current State and Perspectives of Plasma Applications for Catalyst Regeneration
6. Zhao Preparation of Ni/SiO2 catalyst via novel plasma-induced micro-combustion

		method
7.	Zhao	Preparation and Visible-light Photocatalytic Activity of N-doped TiO2 by Plasma-assisted Sol-gel Method
8.	Tyczkowski	Cold plasma â^’ a promising tool for the production of thin-film nanocatalysts
9.	Di	Reduction of supported metal ions by a safe atmospheric pressure alcohol cold plasma method
10.	Peng	Electron Reduction for the Preparation of rGO with High Electrochemical Activity
11.	Lian	Methanol steam reforming by heat-insulated warm plasma catalysis for efficient hydrogen production
12.	Zhao	Cr doped ZnS semiconductor catalyst with high catalytic activity for hydrogen production from hydrogen sulfide in non-thermal plasma
13.	Nguyen	Plasma-treated Sponge-like NiAu Nanoalloy for Enhancing Electrocatalytic Performance in Hydrogen Evolution Reaction
14.	Li	Fe,N -doped graphene prepared by NH3 plasma with a high performance for oxygen reduction reaction
15.	Li	Exploration of Lewis basicity and oxygen reduction reaction activity in plasma-tailored nitrogen-doped carbon electrocatalysts
16.	Zhang	Insight into surface properties of O2 plasma activated Au/TiO2 prepared by DPU in CO oxidation
17.	Chawdhury	Catalytic DBD plasma approach for methane partial oxidation to methanol under ambient conditions
18.	Sim	Synthesis of PtSe catalysts using atmospheric-pressure plasma and their application as counter electrodes for liquid-junction photovoltaic devices
19.	Li	Plasma-promoted Au/TiO2 nanocatalysts for photocatalytic formaldehyde oxidation under visible-light irradiation
20.	Jin	Products selectivity and reaction stability of cobalt-based Fischer-Tropsch catalysts affected by glow discharge plasma treatment and silica structure
21.	Chen	Plasma-doping-enhanced overall water splitting: case study of NiCo hydroxide electrocatalyst
22.	Schnee	ZSM-5 surface modification by plasma for catalytic activity improvement in the gas phase methanol-to-dimethylether reaction
23.	Kierzkowska-Pawlak	Advances in plasma produced CoOx-based nanocatalysts for CO2 methanation
24.	Liu	SnO2/Al2O3 catalysts for selective reduction of NOx by propylene: on the promotional effects of plasma treatment in air atmosphere
25.	Di	Atmospheric-pressure dielectric barrier discharge cold plasma for synthesizing high performance Pd/C formic acid dehydrogenation catalyst
26.	DÄbek	Low-pressure glow discharge plasma-assisted catalytic CO2 hydrogenation â€“ the effect of metal oxide support on the performance of the Ni-based catalyst
27.	Li	Effect of hydrophilic/hydrophobic properties of carbon materials on plasma-sulfonation process and their catalytic activities in cellulose conversion

28. Mok — Plasma-catalytic oxidation of ethylene over zeolite-supported catalysts to improve the storage stability of agricultural products
29. Blanquet — Enhanced hydrogen-rich gas production from waste biomass using pyrolysis with non-thermal plasma-catalysis
30. Tu — Enhanced reforming of mixed biomass tar model compounds using a hybrid gliding arc plasma catalytic process